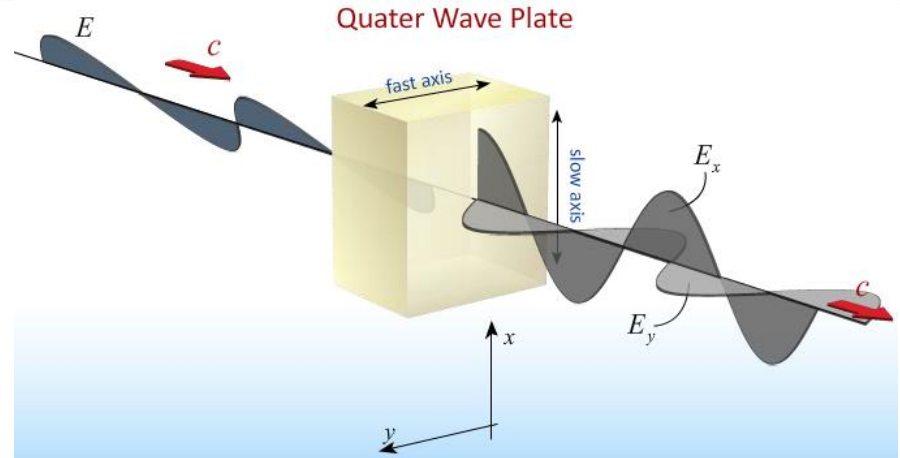


Intensity does not change!

“talk something about intensity”

NOTE: No Intensity is lost passing through the QWP !



BEFORE QWP:

$$E = E_o \sin(kz - \omega t) \left[\frac{\hat{i} + \hat{j}}{\sqrt{2}} \right] \quad \longrightarrow \quad I = c\epsilon_o \langle E^2 \rangle = c\epsilon_o \langle E_x^2 + E_y^2 \rangle$$

$$= c\epsilon_o \left(\frac{E_o^2}{2} + \frac{E_o^2}{2} \right) \langle \sin^2(kz - \omega t) \rangle = c\epsilon_o E_o^2 \frac{1}{2}$$

AFTER QWP:

$$E = \frac{E_o}{\sqrt{2}} \left[\hat{i} \cos(kz - \omega t) + \hat{j} \sin(kz - \omega t) \right] \quad \longrightarrow \quad I = c\epsilon_o \langle E^2 \rangle = c\epsilon_o \langle E_x^2 + E_y^2 \rangle$$

$$= c\epsilon_o \frac{E_o^2}{2} \langle \cos^2(kz - \omega t) + \sin^2(kz - \omega t) \rangle$$

$$= c\epsilon_o \frac{E_o^2}{2} \langle 1 \rangle = c\epsilon_o \frac{E_o^2}{2} \quad \text{— THE SAME!}$$